

Boreal Partners in Flight Working Group

1996 Annual Report

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BOREAL PARTNERS IN FLIGHT WORKSHOP AGENDA

December 3-4, 1996

U.S. Fish and Wildlife Service Regional Office
Gordon W. Watson Conference Room
1011 East Tudor Road
Anchorage, Alaska

Tuesday, December 3rd

8:10 am Welcome and introductions — Brad Andres, Chair, Boreal PIF.

Inventory, Monitoring, Research

8:20 am 1996 Breeding Bird Survey in Alaska — Brad Andres, USFWS.

8:40 am 1996 Mist-netting and banding efforts in Alaska, British Columbia and Yukon — Donna Dewhurst, Alaska Peninsula/ Becharof NWR.

9:00 am 1996 off-road point count program — Colleen Handel, USGS-BRD.

9:20 am Trends from feeder counts in Fairbanks — John Wright, ADF&G.

9:40 am Highlights of five years of mist-netting at Creamer's Field — Anna Marie Barber, Alaska Bird Observatory.

10:00 am Break.

Information and Education

10:10 am Update on "Teaming with Wildlife", the Fish and Wildlife Diversity Funding Initiative — John Schoen, ADF&G.

10:20 am International Migratory Bird Day 1996 — Charla Sterne, USGS-BRD.

10:40 am Status of BPIF slide show — Mark Schroeder, Northwest Areas, NPS.

11:00 am Availability of Alaska bird song CD and Bird Song Master software — John Wright.

11:20 am Additional references for the Alaska Landbird Bibliographic Database — Brad Andres.

- 11:30 am Discussion on training needs and opportunities for 1996 — Brad Andres.
- 11:50 am Lunch.

Management

- 1:00 pm Report on the spruce bark beetle workshop held at Anchorage in October 1996 — Colleen Handel.
- 1:20 pm Effects of placer mining on riparian birds — Anne Morkill, BLM, Northern District.

The Conservation Plan

- 1:40 pm Partners in Flight in the western United States -- where we are heading — Terry Rich, Chair, PIF Western Working Group.
- 2:20 pm Overview of the Conservation planning process and The Flight Plan — Carol Beardmore, PIF Western Regional Coordinator.
- 3:20 pm Break.
- 3:30 pm Step 1. Identify species and habitat priorities for landbird conservation — Carol Beardmore, Terry Rich.
- 3:50 pm Species and habitat prioritization for Southeast Alaska — Brad Andres.
- 4:10 pm Break out into biogeographic regional groups and finalize ranks and primary/secondary habitats for all landbird species breeding within the region. Tools: draft species/habitat priority lists, BBS trends.
- 5:30 pm Adjourn.
- 6:00 pm No host reception at the Railroad Brewing Company

Wednesday, December 4th

- 8:10 am Continue review of species/habitat priority lists in regional groups.
- 10:20 am Break.

10:30 am	Identify monitoring/research needs: baseline, human-induced changes, comparative, global responsibility for all species. Determine level of monitoring needed for each species: distribution, relative abundance, population trends, habitat requirements, reproductive success, survivorship, wintering.
11:30 am	Lunch.
12:40 pm	Review habitat requirements of priority species and assign species to participants. Summarize progress in Biogeographic regional groups.
2:40 pm	Break.
2:50 pm	Break out into technical working groups to review action items and set one new action item that will be accomplished in 1997.
5:00 pm	Summarize technical action items for 1997.
5:30 pm	Adjourn.

INVENTORY, MONITORING, AND RESEARCH

BREEDING BIRD INVENTORIES

Brad A. Andres, U.S. Fish and Wildlife Service

We continued efforts to inventory breeding bird resources on Alaska Army National Guard training areas in 1997. We expended 979 person-hours of survey effort at 23 sites (Table 1) in northwestern Alaska, where we recorded 155 species. We were able to confirm breeding for 86% of these species. We also initiated our first full season of a breeding bird atlas in the Anchorage bowl on Fort Richardson. So far, we have recorded 103 species of which 79% were confirmed or probable breeders. We plan to continue both efforts in 1997.

Table 1. Locations of breeding bird inventories in northwestern Alaska - 1997.

Barrow	Brevig Mission	Alakanuk	Unalakleet
Kotzebue	Teller	Emmonak	St. Michael
Shishmaref	Savoonga	Kotlik	Stebbins
Noatak	Koyukuk	Elim	Mountain Village
Selawik	Nulato	White Mountain	Marshall
Shungnak	Kaltag	Shaktoolik	

BREEDING BIRD SURVEY ROUTES

Paul A. Cotter and Brad A. Andres, U.S. Fish and Wildlife Service

Bird Counts

We completed another successful season of the Alaska Breeding Bird Survey. Seventy-five 50-stop and two <50-stop routes were surveyed in 1996. Participants recorded 173 species on these 77 routes. Table 1 shows the total number of individuals, by species, and the total number of stops where each species was recorded. Check out the national BBS homepage at <http://www.mbr.nbs.gov/bbs/bbs.html>.

One objective of expanding the BBS in Alaska is to better monitor populations of long-distance migrants that have a majority of their North American population occurring in Alaska. To determine if this objective is being met, we compared the number of routes where >7 individuals of these select species occurred between 1993 and 1996 (Table 2). Except for swallows, all of

these species were recorded on more, or the same number of, routes in 1996 than in 1993. For many species the increases were fairly dramatic (i.e. the increase exceeded the 13% increase in route coverage). Thus, the new routes are increasing coverage of these long-distance migrant species.

With completion of the 1996 field season, Marjorie Ward is retiring from her Sitka BBS route. She has consistently surveyed this route for 13 years from 1984 to 1996. I applaud her for her perseverance. Marjorie is certainly a model of observer consistency that we should all try to emulate.

Table 2. Total numbers of birds recorded in Alaska Breeding Bird Survey routes in 1996 ($n = 77$ routes) and the number of stops where species were detected ($n = 3805$).

Species	Total birds	Total stops	Species	Total birds	Total stops
Red-throated Loon	11	9	Peregrine Falcon	3	2
Pacific Loon	23	16	Gyr Falcon	2	2
Common Loon	35	30	Ring-necked Pheasant	10	9
Horned Grebe	8	6	Spruce Grouse	2	2
Red-necked Grebe	40	22	Blue Grouse	53	50
Double-crested Cormorant	3	1	Willow Ptarmigan	88	67
Pelagic Cormorant	8	3	Rock Ptarmigan	27	20
Great Blue Heron	6	5	Ruffed Grouse	3	3
Whistling Swan	64	9	Sora	2	2
Trumpeter Swan	36	22	Sandhill Crane	73	44
Greater White-fronted Goose	124	23	American Golden-Plover	19	17
Canada Goose	356	99	Pacific Golden-Plover	31	20
Green-winged Teal	160	50	Semipalmated Plover	42	32
Mallard	102	38	Killdeer	2	1
Northern Pintail	24	12	Black Oystercatcher	2	1
Cinnamon Teal	1	1	Greater Yellowlegs	58	48
Northern Shoveler	64	13	Lesser Yellowlegs	199	156
American Wigeon	317	82	Solitary Sandpiper	39	35
Ring-necked Duck	19	7	Wandering Tattler	7	7
Greater Scaup	124	34	Spotted Sandpiper	179	127
Lesser Scaup	65	20	Upland Sandpiper	1	1
Unidentified Eider	2	1	Whimbrel	46	34
Harlequin Duck	56	14	Bristle-thighed Curlew	1	1
Oldsquaw	17	8	Hudsonian Godwit	2	2
Black Scoter	29	8	Bar-tailed Godwit	25	18
Surf Scoter	93	27	Ruddy Turnstone	6	6
White-winged Scoter	7	2	Semipalmated Sandpiper	7	3
Common Goldeneye	12	9	Western Sandpiper	24	21
Barrow's Goldeneye	17	6	Least Sandpiper	52	39
Bufflehead	39	13	Rock Sandpiper	130	48

Species	Total birds	Total stops	Species	Total birds	Total stops
Common Merganser	19	16	Short-billed Dowitcher	20	16
Red-breasted Merganser	74	33	Common Snipe	601	498
Osprey	5	5	Red-necked Phalarope	63	22
Bald Eagle	323	166	Parasitic Jaeger	2	2
Northern Harrier	6	6	Long-tailed Jaeger	124	86
Sharp-shinned Hawk	4	4	Bonaparte's Gull	7	6
Northern Goshawk	1	1	Mew Gull	404	138
Red-tailed Hawk	7	7	California Gull	1	1
Rough-legged Hawk	3	2	Herring Gull	23	11
American Kestrel	3	3	Glaucous-winged Gull	459	110
Merlin	8	7	Glaucous Gull	77	11
Black-legged Kittiwake	395	7	Boreal Chickadee	59	47
Unidentified Gull	4	2	Chestnut-backed Chickadee	178	116
Arctic Tern	218	67	Red-breasted Nuthatch	22	22
Aleutian Tern	23	8	Brown Creeper	3	3
Pigeon Guillemot	27	8	Winter Wren	362	266
Marbled Murrelet	148	62	Arctic Warbler	271	164
Rock Dove	31	6	Golden-crowned Kinglet	58	49
Great Horned Owl	3	3	Ruby-crowned Kinglet	889	699
Northern Hawk Owl	3	3	Bluthroat	5	5
Northern Pygmy-Owl	1	1	Northern Wheatear	10	10
Great Gray Owl	1	1	Townsend's Solitaire	12	12
Short-eared Owl	21	18	Gray-cheeked Thrush	593	410
Rufous Hummingbird	51	46	Swainson's Thrush	2261	1274
Belted Kingfisher	42	37	Hermit Thrush	1298	779
Yellow-bellied Sapsucker	1	1	American Robin	1975	1302
Red-breasted Sapsucker	45	41	Varied Thrush	1654	977
Downy Woodpecker	24	21	Yellow Wagtail	95	69
Hairy Woodpecker	36	33	American Pipit	28	22
Three-toed Woodpecker	14	12	Bohemian Waxwing	35	27
Black-backed Woodpecker	1	1	European Starling	5	4
Yellow-shafted Flicker	27	26	Warbling Vireo	24	21
Red-shafted Flicker	1	1	Tennessee Warbler	1	1
Olive-sided Flycatcher	147	138	Orange-crowned Warbler	1811	1221
Western Wood-Pewee	47	38	Yellow Warbler	647	437
Yellow-bellied Flycatcher	1	1	Yellow-rumped Warbler	1312	955
Alder Flycatcher	1285	791	Townsend's Warbler	346	234
Least Flycatcher	1	1	Blackpoll Warbler	416	325
Unidentified Empidonax	1	1	American Redstart	11	9
Hammond's Flycatcher	114	101	Northern Waterthrush	774	444
Pacific-slope Flycatcher	203	157	MacGillivray's Warbler	15	15
Say's Phoebe	10	9	Common Yellowthroat	24	18

Species	Total birds	Total stops	Species	Total birds	Total stops
Horned Lark	3	3	Wilson's Warbler	1373	915
Tree Swallow	253	120	Western Tanager	8	8
Violet-green Swallow	120	57	American Tree Sparrow	545	344
Bank Swallow	428	64	Chipping Sparrow	31	29
Cliff Swallow	417	28	Savannah Sparrow	1106	674
Barn Swallow	24	10	Fox Sparrow	1155	783
Gray Jay	379	303	Song Sparrow	129	94
Steller's Jay	99	81	Lincoln's Sparrow	427	304
Black-billed Magpie	134	83	Golden-crowned Sparrow	534	323
Northwestern Crow	493	111	White-crowned Sparrow	1750	1056
Common Raven	406	240	Dark-eyed Junco	1900	1268
Black-capped Chickadee	76	53	Lapland Longspur	678	254
Snow Bunting	3	3	Red Crossbill	138	12
Red-winged Blackbird	6	5	White-winged Crossbill	288	43
Rusty Blackbird	57	49	Common Redpoll	1377	748
Gray-crowned Rosy-Finch	10	7	Pine Siskin	218	107
Pine Grosbeak	32	27			

Table 3. Numbers of Breeding Bird Survey routes where >7 individuals were recorded in 1993 ($n = 68$ routes) and 1996 ($n = 77$ routes). Depicted species are long-distance migrants that have >25% of their North American population occurring in Alaska.

Species	No. of routes		Species	No. of routes	
	1993	1996		1993	1996
Rufous Hummingbird	2	2	Hermit Thrush	22	30
Alder Flycatcher	32	39	American Pipit	1	1
Hammond's Flycatcher	2	7	Orange-crowned Warbler	38	57
Pacific-slope Flycatcher	6	6	Yellow-rumped Warbler	29	44
Say's Phoebe	0	0	Townsend's Warbler	8	12
Violet-green Swallow	8	5	Blackpoll Warbler	10	16
Bank Swallow	14	12	Northern Waterthrush	11	18
Ruby-crowned Kinglet	18	40	Wilson's Warbler	28	40
Townsend's Solitaire	0	0	Savannah Sparrow	28	35
Gray-cheeked Thrush	21	24	Lincoln's Sparrow	13	20
Swainson's Thrush	41	47	White-crowned Sparrow	42	46

Habitat Classification

In 1996, we began a habitat assessment of Breeding Bird Survey (BBS) routes in Alaska. Habitat classification was adapted from the 5-level Alaska vegetation classification scheme of Viereck et al. (1992). This system identifies vegetation communities in Alaska from general structural components (level I) to species composition (level V). Due to the detail needed to classify to level V, and its questionable relevance to bird-use patterns, we chose to restrict our habitat assessment to level III (that emphasized structural components of the habitat).

Viereck et al. (1992) divide primary vegetation types into 3 major (level I) classes: forest, scrub and herbaceous. Each vegetation type is further divided by structural features (e.g., percent canopy cover, height) and taxonomic characteristics. Level II forests include needleleaf, broadleaf and mixed. Level III forest classifications describe crown canopy coverage: closed (60 - 100% canopy cover), open (25 - 60% canopy cover) and woodland (10 - 25% canopy cover). A secondary classification, that described percent and type of cover provided by understory vegetation, was added for open and woodland forests.

Scrub classes II and III are based on shrub height and percent canopy cover. Level II scrub classes include: dwarf tree, tall scrub, low scrub, and dwarf scrub. Dwarf tree scrub consists of communities with $\geq 10\%$ vegetative cover in tree species that will not, at that location, attain a height > 3 m. Tall scrub vegetation is ≥ 1.5 m, with tall shrubs contributing $\geq 25\%$ total cover. Scrub communities consisting of 0.2 - 1.5 m shrubs ($\geq 25\%$ cover) are low scrub. Dwarf scrub vegetation is characterized by prostrate shrubs (< 20 cm in height) that make up $\geq 25\%$ of vegetation cover. Level III classifications for dwarf tree scrub are the same as those used for forests (closed, open and woodland). Both tall and low scrub vegetation types are designated as closed ($\geq 75\%$ cover) or open ($< 75\%$ cover) at level III. Level III designations of dwarf scrub are by taxonomic group: *Dryas* dwarf scrub, ericaceous dwarf scrub, and willow dwarf scrub.

Herbaceous vegetation at level II is divided into 4 classes: graminoid herbaceous, forb herbaceous, bryoid herbaceous, and aquatic herbaceous. Level III divisions for graminoid herbaceous and forb herbaceous are based on substrate moisture content (dry, mesic, and wet). Herbaceous bryoid vegetation is divided into 2 classes at level III: mosses and lichens. Relative salinity of surrounding water differentiates 3 classes of aquatic vegetation: freshwater, brackish, and marine.

To classify non-vegetated habitats, we added several categories adapted from Kessel (1979): beaches and tidal flats, coastal cliffs and block fields, inland cliffs and block fields, alluvia, and subterranean soil (e.g., cut banks). Water bodies were categorized as fluvial, lacustrine, or near-shore (marine). Houses, buildings, parking lots and other areas modified by humans were designated as disturbed. Burned and logged areas were classified according to their primary habitat (e.g., closed, low scrub) and were noted as being either a burn or cut.

We conducted habitat surveys on 63 of 90 Alaska BBS routes between 17 June and 10 October, 1996. Nearly 95% of 3230 stops were surveyed. To accurately locate stops, we used stop descriptions prepared by BBS observers and consulted with the observers whenever possible.

Habitat composition was determined during a 3- to 5-minute visit at each stop along routes. Similar to bird counts at the stops, the area within an approximately 300-m radius was surveyed. The area of each primary habitat type present was estimated in 10% increments. Most stops, therefore, contained multiple primary habitats which, when summed, equaled 100%. If a distinct habitat type constituted <10% of the stop area, it was recorded as trace. For secondary habitat assessments, we estimated the percent cover contributed by understory vegetation in both open and woodland forests. Secondary habitat was described to level II.

To reduce variability in habitat determinations, all habitat surveys were conducted by 1 of 2 observers; the majority being done by 1 observer. We plan to verify and supplement ground surveys with aerial photography of the routes.

MIST-NETTING AND BANDING

Donna Dewhurst, U.S. Fish and Wildlife Service

Mist-netting and banding effort in 1996 was distributed among MAPS stations (26), spring migration stations (2), fall migrations stations (7), and miscellaneous efforts (5). We captured 22,116 individuals in 1997 with Wilson's Warblers (3,426), Orange-crowned Warblers (2,134), and Ruby-crowned Kinglets (1,933) being the most common species captured. Complete information on species captured at each station follows (Table 4).

After a preliminary analysis of the MAPS program, David DeSante presented information at the Western Working Group meeting in Portland that suggested that MAPS data is most useful when several stations are clustered within a specific region (Brad Andres, pers. commun.). He also suggested that initiation of additional MAPS stations be driven specific questions about survivorship or productivity of targeted species. Clearly, we should entertain these notions in thinking about the allocation of MAPS stations within Alaska. In the interim, participants are urged to fulfill their initial 5-year operation commitment.

OFF-ROAD POINT COUNT PROGRAM

Colleen M. Handel, USGS-BRD

Background

In 1992, an experimental program using Off-road Point Counts was established to test its potential to monitor landbird populations across Alaska. At the time, the only program in place was the Breeding Bird Survey (BBS), which was limited geographically in its coverage because of the distribution of roads. The intent was to establish a relatively inexpensive program that would encompass more of the habitats and remote areas of the state that were not accessible by road.

In this research program, several basic questions were posed: (1) When would be the best time to survey within each biogeographic region, including time of day and time of season? (2) If observers changed from year to year, how would that affect the ability of the monitoring program to detect real changes in bird populations? (3) How many samples would be needed within each region to detect population changes at the level desired?

The goal of a successful program for monitoring landbird population sizes, as outlined by National Partners in Flight, is to be able to detect a 50% change in population size over a 25-year period at a 95% confidence level and with a statistical power of 90%. To accomplish this goal, the sample size, or number of surveys that must be repeated each year within a region that includes the species of interest, depends on the coefficient of variation of whatever measure of abundance is used. In the case of off-road point count surveys, the measure being tested is total number of birds detected per route. The coefficient of variation (standard error/mean) must be less than 0.25 to meet the criteria outlined above for successful monitoring.

General Methods

A two-tiered experimental research program was coordinated by the Alaska Science Center to answer these questions and to provide basic recommendations on how such a program could be implemented successfully. The first tier consisted of an intensive monitoring program in the Anchorage bowl of Southcoastal Alaska to test, in a balanced statistical design, the following factors influencing the number of birds being detected: time of day, time of season, observer, route, and year. The second tier consisted of an extensive monitoring program throughout the rest of Alaska primarily during the summer period, to validate the Anchorage results. Some tests of seasonal variation were also conducted in other regions in specific localities. The entire program represents the results of an incredible voluntary effort across the state.

Each route consists of 12 points, spaced at least 250 m apart to minimize double-counting of individuals. Routes are oriented across habitat gradients in an area and have a random starting position, generally along a tertiary trail. Counts start at sunrise or no earlier than 0300 h at more

northern latitudes. Each count is conducted for 5 minutes, with birds detected within the first 3 minutes denoted separately for comparison with BBS data. The count circle is of unlimited radius, with birds detected within 50 m of the point denoted separately for comparison with habitat data. Most statewide surveys were conducted during one of two 10-day blocks (11-20 June, 21-30 June); some surveys in Southeastern Alaska were conducted from 1-10 June.

In Anchorage, five routes were surveyed once in each 5-day block from 21 April to 30 May and then once in each 10-day block from 31 May to 9 July to determine seasonal patterns of detectability. Observers were rotated in a balanced pattern, and surveys were repeated from 1993-1996 to test interannual variability. An additional eight routes distributed across the Anchorage bowl were sampled from 1993-1996 according to the statewide protocol. During 1992, observers were trained, diurnal variability was tested on 3 routes in five 2-hour time blocks starting at 0430 h, and the optimal number of points per route was determined. Training consisted of listening to taped songs and calls of local species as well as practicing identification and survey methods in the local field setting.

Preliminary Results of Analyses

Some results of preliminary analyses of the Anchorage data are summarized here. Please note that the statewide data have not yet been analyzed and the Anchorage results have not yet been validated for other regions. These analyses will continue this winter, and recommendations should be made for the statewide program in April 1997.

Time of day — Detections of total numbers of birds and number of species remained stable through the first three time blocks tested: 0430-0630, 0630-0830, and 0830-1030. Numbers of individuals and numbers of species detected both dropped significantly during the 1030-1230 time block and rose again only slightly during the 1230-1430 time block. Therefore, the first recommendation is that all surveys be completed between sunrise and 1030 h.

Seasonal period — Seasonal patterns of detection in the Anchorage area varied significantly among species. For most species, however, the patterns were quite similar among the four years studied. Peak abundance consistently occurred early in the season (late April to early May) for several species: Black-capped Chickadee, Common Snipe, Black-billed Magpie, Ruby-crowned Kinglet, Varied Thrush, American Robin, and Slate-colored Junco. A few species peaked in late May or early June: Myrtle Warbler, Orange-crowned Warbler, Townsend's Warbler, Wilson's Warbler, and Lincoln's Sparrow. Two late-arriving species did not reach peak detectability until mid-June: Swainson's Thrush and Alder Flycatcher. The remaining species (of the 28 regularly occurring ones examined) either had long periods of high detectability or were highly variable among years.

The next step in the analysis will be to calculate, for each species, the coefficient of variation within each seasonal period to determine the optimal period of sampling per species. We will then examine the entire suite of species to determine the best single period to monitor the greatest

number of species from the community. We will also examine other periods to see if sampling during an additional one or two periods would increase our ability significantly to monitor the community as a whole. It is clear that if we wish to monitor the late-arriving species such as Alder Flycatchers, we will need to survey between 10 and 30 June. All other species can be monitored during this period as well: their abundance is generally lower than earlier in the season, but the variability is also lower. Therefore, the second recommendation is to continue to survey from 10-30 June if only a single survey can be completed in an area each year.

Other factors contributing to variability in counts — For the core 28 species regularly occurring on the five replicated Anchorage area routes during the four 10-day summer periods (31 May-9 July), we partitioned the variance around the mean to identify which factors contributed significantly. For 23 of the 28 species (82%), the mean number of detections varied significantly among the five routes, which was not unexpected since they sampled different arrays of habitat in the study area. Over half (54%) of the species showed significant seasonal variation in detectability among the four summer periods, but none of the species varied significantly between the last two 10-day periods of June. Only 6 of the species (21%) showed significant variability among the four years, and there was no apparent temporal trend in numbers for those.

Surprisingly, only 5 of the species (18%) showed significant variation in detectability among different observers. These were Ruby-crowned Kinglet, Hermit Thrush, Slate-colored Junco, Golden-crowned Sparrow, and Common Redpoll. Only for the Slate-colored Junco was observer the primary source of explained variation. For the others, the variability due to observer was overshadowed by that due to route, seasonal period, or year. Because Slate-colored Juncos occur in relatively high abundance, this species may be one of the most difficult to count accurately, even for trained observers. In addition, their song can be easily confused, especially at a distance, with that of the Orange-crowned Warbler. It is possible that differences in misidentification rates could contribute to the high variability recorded among observers. Since a similar trend was not recorded for Orange-crowned Warblers, however, this may not be the case.

A few interactions between factors also explained significant amounts of variation in detectability for some species. For 6 species (21%), seasonal patterns of detection varied among routes. For 8 species (29%), annual patterns of detection varied among routes. And for only 2 species (7%), seasonal patterns varied among years.

Based on these preliminary analyses, a tentative recommendation is that for most species, variability among observers will not be an overriding concern in design of the monitoring program. The caveat is, of course, that the observers must go through a rigorous training program and be very familiar with the vocalizations of birds in the survey area. The same results will not hold if untrained observers or individuals new to an area are used.

Minimum number of routes required — We calculated the number of routes that would be required to monitor the population size of the 28 species of birds that were regularly recorded, based on their coefficients of variation of detectability on the 13 routes surveyed in the

Anchorage bowl (using only a single replicate during the last two 10-day periods in June each summer). On the existing 13 routes, populations of five species could be monitored within the Anchorage bowl itself: Alder Flycatcher, Swainson's Thrush, Myrtle Warbler, Orange-crowned Warbler, and Slate-colored Junco. With 20 routes, an additional five could be monitored at this scale: Black-capped Chickadee, Ruby-crowned Kinglet, Hermit Thrush, American Robin, and Lincoln's Sparrow. An additional ten species could be monitored with about 50 routes, but a few species that occurred in numbers that were highly variable (e.g., Golden-crowned Kinglet and Violet-green Swallow), would require more than 200 routes to monitor adequately.

Note that these preliminary analyses included all routes within the Anchorage bowl, regardless of whether the species was recorded on all or just some of them. For certain habitat-specific species, such as the Golden-crowned Kinglet, the coefficient of variation could be reduced significantly if routes were stratified by habitat. This possibility will be investigated further.

It should also be noted that these analyses are restricted to the Anchorage bowl, and that the coefficients of variation calculated from this study area may vary substantially from those that will be calculated for other regions. Therefore, tentative conclusions about which species may be able to be monitored must be tempered by the differences in abundance that occur within and across regions. Data will be analyzed for the rest of the state later this winter so that statewide recommendations can be made.

Comparison of sample size requirements with Denali data— Similar calculations of sample size requirements were made by Paton et al. (Paton, P. W. C., T. H. Pogson, and E. Rextad. 1995. Development of landbird monitoring protocols for National Parks in Alaska. Annual Report, 1994 Field Season. Unpubl. rep., U.S. Geol. Serv., Biol. Res. Div., Anchorage, Alas.) for point counts in Denali National Park and Preserve, based on frequency of occurrence at individual points instead of on total numbers of individuals per route. The coefficients of variation for 20 12-point routes in the Anchorage bowl and for the equivalent 240 individual points in Denali were quite similar for species with broad geographic distributions (Common Snipe, Olive-sided Flycatcher, Ruby-crowned Kinglet, Orange-crowned Warbler, and Common Redpoll). Given this level of survey effort, 13 species could be monitored adequately in Denali Park and Preserve compared with 10 species in the Anchorage bowl.

Several tentative conclusions can be reached based on this comparison. First, at the scale of a land-management unit, such as a park or refuge, it will be possible to monitor populations of a core group of species with a reasonable level of effort (10-20 routes, or 120-240 points). Second, once data are pooled from across different land-management units, many more species will be able to be monitored, given that variability does not increase significantly. Thus, we will be able to establish a tiered monitoring program, in which certain species can be monitored locally, additional ones regionally, and the rarest and most variable ones can be monitored at the statewide level. Finally, similarities in the coefficients of variation calculated on the basis of total counts and on frequency of occurrence suggests that we may have great flexibility in the methods of analysis of population trends. We will investigate this further with the Anchorage

and statewide datasets.

Status of Statewide Monitoring Program

During 1996, 72 routes with at least 12 points were surveyed. This represents a 20% decline from the 90 routes that were run in 1995 and a 40% drop from the 119 routes surveyed in 1994, the year of peak effort statewide (Table 5). Almost half (31) of the routes surveyed last summer were in Central Alaska, 15 were run in Southcoastal Alaska, and 10 were surveyed in Southwestern Alaska. Efforts in Western Alaska have remained low but remarkably steady, with 6 routes surveyed last summer. Southeastern and Northern Alaska had the fewest routes surveyed last summer, each with a total of only 5. This represents a substantial increase for Northern Alaska and a marked decline for efforts in Southeastern. At the current level of effort, it is unlikely that any species could be monitored at the regional level, except perhaps within Central and Southcoastal Alaska. Specific recommendations will be made once the statewide data are analyzed.

A total of 156 routes has been surveyed since 1992. Among these, 9 (6%) have been surveyed for 5 years, 22 (14%) for 4 years, 42 (27%) for 3 years, 15 (10%) for 2 years, and 68 (44%) for only a single year. The latter group includes many that have been discontinued for a variety of reasons and a few that were newly established in 1996. The power analysis for number of routes required for a monitoring project assumes that the same routes are replicated across years. If routes are changed among years, it is likely that the coefficient of variation will increase, since route was the single greatest contributor to variance in detections for almost all (82%) of the species. If routes are changed among years, then the sample size required to monitor the populations will increase dramatically. Therefore, a major recommendation as this experimental program evolves into a bonafide monitoring program is to make a strong commitment to continue surveying whatever routes are permanently established for the next 20 years. Routes that are currently established should continue to be surveyed, if resources are available, to provide a solid baseline for monitoring long-term trends. Specific recommendations for the geographical allocation of effort across each region will be made based on the goals for monitoring specific species.

Future Analyses

Over the next few months we will be conducting many more analyses, particularly of the statewide data. One important issue we will examine will be how the spatial scale of monitoring will influence sample size requirements. Will we be able to monitor some species statewide (rare or uncommon or highly variable species) and others regionally and locally? Another issue we will address is whether or not we can use habitat data that have been collected for each point to stratify the routes and decrease the coefficient of variation. Finally, we will compare several possible analytical methods to determine which will be the best, in light of regular changing of observers and some changing of routes, for detecting declines in population size.

Once the analyses are completed, we will provide a set of recommendations for a basic monitoring program, identifying key species and sample sizes needed within each region. We will also investigate the feasibility of establishing an additional early-season survey to monitor resident species and early breeders more effectively. Finally, we will need to determine, as a Working Group, how to implement this monitoring program statewide and how to provide timely feedback to managers to trigger conservation actions when needed.

We now have about 40,000 records of bird observations in our database from across the state. We also have data on habitat from almost all of the points that have been surveyed. We need to determine how else we might make use of this great source of information. We will be investigating how to organize the information and make it accessible, perhaps via the World Wide Web, to all of those who have contributed the data. A big thanks goes out to all of you who have made this statewide research project a success!!

Table 5. Number of off-road point count routes surveyed in biogeographic regions of Alaska from 1992-1996.

Region	1992	1993	1994	1995	1996	Total
Northern	0	4	1	1	5	9
Western	0	6	8	6	6	13
Southwestern	0	5	8	11	10	23
Central	3	19	68	40	31	71
Southcoastal	8	18	21	18	15	24
Southeastern	0	13	13	14	5	16
Total	11	65	119	90	72	156

INFORMATION AND EDUCATION

Charla Sterne, USGS-BRD

1996 INTERNATIONAL MIGRATORY BIRD DAY

At the BPIF 1995 workshop the I&E technical committee identified the need to bring all IMBD participants together in one coordinated activity while maintaining the array of educational opportunities currently being provided during the week long celebration. To this end, the North American Migration Count was adopted as Alaska's IMBD hallmark event.

The timing and easy protocol of this count makes it an ideal educational tool. The NAMC is a one day count tallying species and individuals. Like the Christmas Bird Count and the Breeding Bird Survey, it is a continental effort, and several Alaskans already participate. For educational purposes the protocol was modified to allow counts to be conducted during any continuous 24 hour period between May 5 and 12. However, in order for a count to be submitted to the national program, it had to occur on May 11.

The efforts of all counters were awarded with IMBD 1996 t-shirts, posters, pins or stickers. Seventy-three individuals in 16 groups recorded a total of 162 species. The Kachemak Bay group lead the state with 101 species and the most unusual bird, a Sora, was recorded by the Tok group. We had impressive coverage - from Wrangell to Barrow - and counts in several remote locations including Hinchinbrook Island and the Noatak and Sheshalik rivers.

Overall, 10 governmental units and three nongovernmental organizations hosted activities including guided bird walks, presentations and community events. More than 1100 children, 2200 adults, 10 local officials and seven members of the media participated in IMBD activities. Media outreach included 14 newspaper articles, six magazine/newsletter articles, 24 radio spots and two television reports. IMBD 1996 participants include:

Contact	Activity
Sandy Frost, USFS & Cordova Chamber of Comm.	Cordova Shorebird Festival
Chris Dau, USFWS, Izembek NWR	Birdwalk, youth program
Laurie DeWispelaere, NPS, Wrangell-St. Elias NP	Birdwalk, radio/tv, NAMC
Peg Robertsen, USFS, Wrangell RD	Radio/tv, NAMC
Terry Doyle, USFWS, Tetlin NWR	Adult program, NAMC
Janet Warburton, USFWS, Selawik NWR	Birdwalk, radio/tv, youth program, NAMC
Todd Trapp, USFWS, Region 7	Birdwalk, youth program, NAMC
Stewart Bentley, USFS, Sitka RD	Birdwalk
Poppy Benson, USFWS, Alaska Maritime NWR	Birdwalk, youth/adult programs, Homer Shorebird Festival, radio/tv, NAMC
C. McIntyre, NPS, Denali NP	NAMC

Table 6. International Migratory Bird Day 1996 North American Migration Count Species List.

Red-throated Loon	Sharp-shinned Hawk	Red-necked Phalarope
Pacific Loon	Northern Goshawk	Pomarine Jaeger
Common Loon	Red-tailed Hawk	Long-tailed Jaeger
Horned Grebe	Rough-legged Hawk	Bonaparte's Gull
Red-necked Grebe	American Kestrel	Mew Gull
Double-crested Cormorant	Peregrine Falcon	Herring Gull
Pelagic Cormorant	Gyr Falcon	Glaucous-winged Gull
Red-faced Cormorant	Ring-necked Pheasant	Glaucous Gull
Great Blue Heron	Spruce Grouse	Black-legged Kittiwake
Tundra Swan	Blue Grouse	Ivory Gull
Trumpeter Swan	Willow Ptarmigan	Caspian Tern
Greater White-fronted Goose	Rock Ptarmigan	Arctic Tern
Snow Goose	Ruffed Grouse	Aleutian Tern
Brant	Sharp-tailed Grouse	Common Murre
Canada Goose	Sora	Pigeon Guillemot
Green-winged Teal	Sandhill Crane	Marbled Murrelet
Mallard	Black-bellied Plover	Kittlitz's Murrelet
Northern Pintail	American Golden-Plover	Tufted Puffin
Northern Shoveler	Semipalmated Plover	Horned Puffin
Eurasian Wigeon	Killdeer	Rock Dove
American Wigeon	Black Oystercatcher	Great Horned Owl
Canvasback	Greater Yellowlegs	Northern Hawk Owl
Redhead	Lesser Yellowlegs	Short-eared Owl
Ring-necked Duck	Solitary Sandpiper	Northern Saw-whet Owl
Greater Scaup	Wandering Tattler	Rufous Hummingbird
Lesser Scaup	Spotted Sandpiper	Belted Kingfisher
Common Eider	Whimbrel	Red-breasted Sapsucker
King Eider	Hudsonian Godwit	Downy Woodpecker
Harlequin Duck	Marbled Godwit	Hairy Woodpecker
Oldsquaw	Black Turnstone	Three-toed Woodpecker
Black Scoter	Surfbird	Northern Flicker
Surf Scoter	Red Knot	Hammond's Flycatcher
White-winged Scoter	Semipalmated Sandpiper	Pacific-slope Flycatcher
Common Goldeneye	Western Sandpiper	Tree Swallow
Barrow's Goldeneye	Least Sandpiper	Violet-green Swallow
Bufflehead	Pectoral Sandpiper	Cliff Swallow
Common Merganser	Rock Sandpiper	Horned Lark
Red-breasted Merganser	Dunlin	Gray Jay
Osprey	Short-billed Dowitcher	Steller's Jay
Bald Eagle	Long-billed Dowitcher	Black-billed Magpie
Northern Harrier	Common Snipe	American Crow

Northwestern Crow	American Robin	Fox Sparrow
Common Raven	Varied Thrush	Song Sparrow
Black-capped Chickadee	American Pipit	Lincoln's Sparrow
Boreal Chickadee	Bohemian Waxwing	White-throated Sparrow
Chestnut-backed Chickadee	European Starling	Golden-crowned Sparrow
Red-breasted Nuthatch	Orange-crowned Warbler	White-crowned Sparrow
Brown Creeper	Yellow Warbler	Dark-eyed Junco
Winter Wren	Yellow-rumped Warbler	Lapland Longspur
American Dipper	Townsend's Warbler	Red-winged Blackbird
Golden-crowned Kinglet	MacGillivray's Warbler	Rusty Blackbird
Ruby-crowned Kinglet	Northern Waterthrush	Pine Grosbeak
Mountain Bluebird	American Tree Sparrow	Common Redpoll
Hermit Thrush	Savannah Sparrow	Pine Siskin

Table 7. 1996 International Migratory Bird Day Bird Count Participants

Barrow — 6 species

Lynne Dickson	Tim Obritschkewitsch	Todd Sforma
Dave Norton	Lori Quakenbush	Robert Suydam

Denali National Park — 49 species

S. Deyoe	C. McIntyre (compiler)	M. Swaim
N. Eagleson	P. Owen	E. Vorisek

Fort Richardson — 16 species

Laurie Angell	(6 second graders)	Todd Trapp (compiler)
Renee Marth	Mr. Marth	

Glen Highway — 15 species; Althea Hughes and Marie Jenkins

Glenallen — 41 species

LaurieDeWispelaere (compiler)	Melissa Hronkin Vanessa Johnson	Mark Nielsen
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Hinchinbrook Island — 17 species; Even Evanson

Kachemak Bay — 101 species

Gentle Anderson
Ed Bailey
Brad Benter
Amy Bollenbach
Tami Boyer
Marcus Bradley

Dale Chorman
Heidi Clifford
Beth Cummings
Don Cunningham
Willy Dunne (compiler)
Nina Faust

Mossy Kilcher
Rich Kleinleder
Dennis Paulson
Anne Weiland

Kenny Lake — 35 species; E. T. McHenry

Klutina River — 9 species; Brad Henspeter

Matanuska-Susitna Valley — 65 species; Brad Andres

Noatak — 10 species; Sally McClellan

Sheshalik — 12 species; Bob Uhl

Stikine River Delta — Peter Walsh; 54 species

Tok — 69 species

Terry Doyle (compiler)
Bob Frey
Jim Gowen
Nancy Mazurek
Kathy O'Reilly-Doyle
Russ Persson

Louisa Reitter
Bob Schulz
Frances Schulz
Sheila Thomas
Hank Timm
Jeb Timm

Mary Timm
Chara Trimble
Katherine Voss
Richard Voss

Wrangell Island - 51 species

Scott Posner
Diane Posner

Peg Robertson
Julianne Thompson

Yakutat — 58 species; Brian Browne and Richard Capitan

1997 INTERNATIONAL MIGRATORY BIRD DAY

We would like to continue providing diverse opportunities for people to learn more about migratory birds during IMBD week, **MAY 2 - MAY 11**, in 1997. Like last year, we are promoting the North American Migration Count as Alaska's IMBD '97 hallmark event. The timing and easy protocol of this count makes it an ideal educational tool for IMBD. Like the Christmas Bird Count and the Breeding Bird Survey, this is a continental effort. We realize that several Alaskans and Yukoners are already participating in the count and several Audubon chapters hold bird-a-thons around this time. We hope to augment these existing counts, not to compete with them.

As in 1996, we would like to target all age and skill levels in 1997. Counts should be submitted to Brad Andres who will compile the results and submit them to NAMC coordinator Jim Stasz. Don't let any of the following rules prevent you from coordinating a count. If you have a unique situation and are uncertain about your ability to participate, give Brad a call (907-786-3378).

To be official and have your count submitted to the national program, the count should be conducted on the second Saturday in May (May 10, 1997) and should span no more than 24 hours. For educational purposes **only**, we would like to extend the period to any 24 hour span between May 2 and May 11.

The counting unit in Alaska should be Game Management Units rather than counties as prescribed by the protocol. Game Management Units are assigned for the entire state by Alaska Department of Fish and Game. This information is essential; data will be compiled by GMU for submission to Jim Stasz, the NAMC national coordinator. Where your reporting form calls for count area, enter Game Management Unit number.

One form per count should be submitted. For example, if you coordinate four small group counts, you will be submitting four count sheets - one for each of the counts - regardless of how many observers were in each group. It is the coordinator's responsibility to ensure that hours and miles are reported correctly, to compile data from the counts he or she coordinates and to submit the results to Brad.

All count forms should be submitted to Brad Andres no later than June 1, 1997. All participants will receive an IMBD '97 poster and a summary of all species recorded on counts between May 2 and May 11. Tabulated results will be submitted to NAMC national coordinator no later than June 30, 1997.

Following are the 1997 IMBD North American Migration Count instructions and an activity reporting form. Please submit a report of all of your IMBD activities to Brad Andres. If you would like additional IMBD materials as they become available, please contact Brad.

RESOURCES

Alaska bird song CD (\$30) and Bird Song Master software (\$60) is available. Contact the Alaska Bird Observatory. Thanks to John Wright for seeing this project through.

Mark Schroeder, NPS, is putting the final touches on an Alaskan version of the Partners in Flight slide show. We still need to work on cost and distribution but copies may be available for IMBD. Thanks for the effort Mark.

Cordova and Homer will hold their shorebird festivals during the weekend of IMBD. Fairbanks and Anchorage are planning city-wide events for weekends around IMBD.

CONSERVATION PLANNING

As I have previously mentioned, Partners in Flight is embarking on a national conservation planning effort. The general purpose is to use the tools of PIF (monitoring, research, I&E, management, international) to actively conserve birds and their habitats and associated human use of avian resources. The planning process is not a new dimension of PIF, but a way to have its following a better blueprint. Below is a summary of the plan that I have previously presented.

PIF principles:

- conserve before endangerment
- enhance conservation of habitats
- conserve on breeding, migration and wintering areas
- inform birding constituency
- develop innovative partnerships

Key points: Conservation of bird habitats — across the landscape, ecosystem, hemisphere, globe — focused, cooperative, adaptive, effective

Steps:

1. Identify and rank species most in need of conservation.
2. Establish population and habitat conservation objectives.
 - a. describe the habitat conditions and management practices favorable to priority species or species suites.
 - b. set objectives for the nature, extent, and distribution of favorable habitat conditions or populations of priority birds.
3. Identify habitat conservation partnerships that will accomplish objectives of step 2.
 - a. landscape-wide conservation partnerships
 - b. important bird areas (discrete, core sites)
 - c. best management practices
4. Implement plans and monitor progress

Carol Beardmore, Western Regional PIF Coordinator, and Terry Rich, Western Working Group Chair, sparked the Alaska conservation planning process at our December meeting. BPIF has decided to pursue conservation plans at the biogeographic regional level. At that meeting, we met in biogeographic regional groups to work on species and habitat priorities and habitat requirements of priority species. Drafts of FINAL species/habitat priorities are available for Southcoastal from Colleen Handel, and will some be available for the other regions. **As drafts biogeographic regional plans take shape, please distribute them to BPIF members in the region and to all technical/biogeographic regional chairs.** At the meeting, we assigned participants to produce general habitat/distribution descriptions of high priority (being collated by Paul Cotter, USFWS). The list of species assignments follows.

WWCR, ALFL: Paul Cotter
TISP: Terry Doyle
OSFL, HAFL, BOOW, GGOW: John Wright
BLPW, GCTH: Brian McCaffery
MCBU, GCSP: Brad Andres
ARWA, SEOW: Mark Schroeder
SITI: Mark Schroeder/Buddy Johnson
BOCH: Buddy Johnson
SMLO: Shelli Swanson/Bruce Bennett
RLHA, GYRF: Shelli Swanson
NOWA: Bruce Bennett
WTPT: Andy Aderman
VATH: Andy Aderman/Mark Bertram
RUBL: Kristine Sowl
BOWA: Mark Schroeder/Kristine Sowl
NSHR: Ted Swem/Buddy Johnson
TOWA: Anne Morkill/Steve Matsuoka
GOEA: Carol McIntyre
AMDI: Shelly Swanson/Anne Morkill
STGR: Steve Dubois
NOGO:

When identifying monitoring/research needs of high priority, and all, species the following considerations were suggested.

1. baseline--prior to disturbance
2. for changes due to human or natural impacts
3. for comparative purposes with lower 48, i.e. high priority species affected by cowbird parasitism
4. for global monitoring responsibility

Information on the level of monitoring needed for each species was should also be considered in conservation plans:

1. distribution
2. relative abundance
3. population trends (what techniques should be used)
4. habitat requirements
5. reproductive success (and/or demographic data)
6. survivorship
7. winter

BIRD INVENTORY AND MONITORING IN NORTHWEST ALASKA AREAS

Mark Schroeder, National Park Service

1996 PROJECT DESCRIPTIONS

Survey Breeding Songbirds: This project consisted of a Breeding Bird Survey (BBS) and Off-Road Point Counts (ORPC). The BBS was completed by USFWS personnel to systematically count birds at 50 points along the Red Dog haul road. The ORPC's were concentrated near the Kelly River Field Station. The ORPC effort is a statewide effort to obtain similar data as the BBS, but in roadless areas. Because only 12 points can be completed in a morning and weather is an important consideration, several mornings were required. Two routes were completed in 1996. The objectives of both efforts are to systematically monitor passerine population trends in a statistically valid manner. The Noatak possesses prime tracts of boreal forest and we are committed to contributing to national databases as well as to monitor key passerine species for the entire US if possible. For example, two important species that breed in the Noatak are the Blackpoll warbler and the Gray-cheeked thrush, neotropical migrants that winter in the Caribbean and Amazon basin, respectively. The Noatak is perhaps the only park in the US where these birds breed in sufficient numbers to adequately monitor. As such, NWAK is evaluating the feasibility of taking the lead in monitoring these and similar migratory species.

Shorebird Nest Plots: Nesting shorebirds were studied as part of a special focus project 1991-1993. Mark Schroeder assumed responsibility for the project in mid-1992 and completed a final report. An important recommendation in that report called for determining migration patterns of coastal species as well as continued monitoring of the most productive shorebird nesting plots in key tundra habitats. With continual turnover in the NPS NWAK resource management staff neither has received any attention. No follow-up shorebird work was conducted until 1996, despite stationing NWAK personnel at CAKR in 1993 and 1994. In 1996, Schroeder and a GS-3 assistant rope-dragged six nesting plots in one specific shorebird breeding habitat. This 2-person effort was inadequate to locate shorebird nests, determine differences in productivity between habitats, and assess natural year-to-year variation. Future minimal efforts

we propose include stationing a seasonal biologist at CAKR prior to migration in order to document arrival times and peak abundance of the most important species. A minimum three-person team would complete rope-dragging on the three most productive nesting habitats. These studies would be integrated with shorebird projects conducted at Cape Espenberg (BELA) as much as possible.

Bird Inventory--Area Searches: Interagency biologists continued to survey for montane nesting shorebirds. Using GIS technology, several areas were identified as possible Bristle-thighed Curlew nesting areas. About a third of these remote areas were searched in 1996. While no curlews were found during these limited surveys, important brood aggregation areas and previously unknown high density breeding areas for other shorebird species were documented (Gill, Schroeder, and Schnorr 1996). The remaining areas to be searched will require helicopter access during the break-up period.

A recently published bird checklist summarized published information for the birds found in each of the park units. This list will be updated following the documentation of several species in each of the units by biologists in 1996. Additional surveys in new areas will most likely add additional species, increasing our understanding of the biodiversity of each park unit.

PROPOSED PROJECTS FOR 1997

Document Coastal Stopover Areas: Seven sites have been identified for possible inclusion in the Western Hemisphere Shorebird Reserve Network, an international coalition of public and private landowners cooperating to conserve shorebird habitat. Membership in the network brings international recognition to critical wetland sites and enhances local capacity for effective conservation. Membership in the network is strictly voluntary and is based on biological criteria. The primary objective of this project is to obtain biological information for the seven sites: Cape Krusenstern, Noatak River Delta, Cape Espenberg, Shishmaref Inlet, Arctic Lagoon, Lopp lagoon, and the central Seward peninsula. The central Seward peninsula would be proposed for inclusion in the network primarily due to the importance of this site to breeding Bristle-thighed Curlews. Migrating shorebirds would be counted at the six sites and the Kobuk river delta as part of a 2-year effort to determine their relative importance. Cooperation of state, federal, and local Native Corporations and communities is essential.

Survey Tundra Swans: Tundra swans are a conspicuous breeder in CAKR. The CAKR/Kobuk Lake vicinity is also important as a staging areas for post-breeding swans migrating south in early September. Recent interest in hunting swans calls for an assessment of swans numbers in order to determine if a harvest could be supported and, if so, under what conditions. The NPS completed swan surveys until 1992. We propose to complete these transects in 1997 as well as attempt to accurately count aggregating swans using airborne video technology.

Cooperate with Biological Resources Division on Curlew Study: The Bristle-thighed curlew is considered Threatened by BirdLife International and a Species of Special Management Concern

(formerly Category 2 under the Endangered Species Act). They breed in subarctic tundra in two known areas of western Alaska and winter on small islands in the tropical and subtropical Pacific ocean. The world breeding population probably consists of less than 7000 birds. Of these, about half of the known breeders do so in the Yukon Delta NWR and the other half breed in the central Seward Peninsula. These may represent separate populations. Observations indicate there may be a third breeding site in the Cape Krusenstern vicinity. The NPS has collaborated with the BRD in surveying areas for curlews in potential breeding habitats of CAKR.

In addition to locating a possible third breeding site for the rare Bristle-thighed Curlew in remote areas of CAKR, scientific efforts have focussed on documenting curlew wintering areas in Oceania. Under a collaborative interagency agreement with the Biological Resources Division (USGS), six curlews from the central Seward Peninsula would be instrumented and tracked via satellite to remote oceanic islands in tropical and subtropical Pacific Ocean. Curlews breeding in the central Seward Peninsula (BELA) appear to bypass the Hawaiian Islands en route to wintering areas. This separation of races increases the risk that breeding populations will decline. Wintering birds are susceptible to oil spills, human harvest, and displacement by coastal developments as well as being vulnerable to human harvest and predation by non-native predators during a flightless molting period. As the primary threats to high concentrations of curlews occur in wintering areas, the documentation of these sites is the essential first step towards working with international partners to foster protection of curlews throughout their range. Locating curlew wintering areas by traditional telemetry techniques is inadequate and inefficient; fortunately, recent miniaturization of satellite transmitter technology has permitted consideration of obtaining this information. The Shorebird Sister School Program would involve local students in the study.

ACTION PLAN

INVENTORY AND MONITORING

- A. Develop and maintain an Alaska list of landbird species classified by migration strategy, population status, habitat use, biogeographic distribution, relative abundance, and potential threats on breeding and wintering grounds.
 - 1. Using the neotropical migratory bird list developed by the Research Working Group, develop a list of neotropical migratory birds in Alaska. **12/92**
 - 2. Develop a list of Alaska landbirds occurring in each biogeographic region during the breeding season, with a summary of their relative abundance, habitat use, and the extent of habitat loss in Alaska. Incorporate into Western Working Group database for ranking species of concern. **2/97**
 - 3. Maintain records of current distribution of Alaska landbirds. **Ongoing**

- B. Coordinate inventory and monitoring of bird populations and their habitats in Alaska.
1. Assemble and distribute a packet of standardized forms, codes, and instructions to cooperators. **Ongoing**
 2. Summarize annual coverage of various monitoring programs by species, biogeographic region, and habitat. **Ongoing**
 3. Identify species, regions, and habitats not receiving adequate coverage by current inventory and monitoring programs. **Ongoing**
 4. Expand BBS coverage in the state and to 80 routes per year. **12/97**
 6. Maintain effort, based on educated decisions, in all monitoring programs. **Ongoing**

RESEARCH

- C. Coordinate efforts among researchers to develop and test sampling designs and methodology for inventory and monitoring of landbird populations and their habitats in Alaska.
1. Test and establish bird monitoring and inventory methods with guidelines for standardization within Alaska and across North America. **Ongoing**
 - a. Coordinate field efforts for testing methodology. **Ongoing**
 - b. Recommend most appropriate censusing methods by species, habitat, and region. **Ongoing**
 - c. Develop recommendations for statewide implementation of MAPS program. **12/97**
 - d. Draft letter to DeSante to address issue of immigrant flux. **2/95**
 - e. Determine which terrestrial habitat classification system to recommend as standard or construct cross-references between classification systems. **12/97**
 - f. Recommend appropriate scales and time frames for inventory and monitoring. **Ongoing**
 - g. Initiate habitat data collection along BBS routes. **9/97**

- d. Prepare report on recommendations for migration monitoring. **2/95**

- D. Coordinate efforts among researchers to understand population dynamics, habitat requirements, and seasonal patterns of distribution of landbirds in Alaska.
1. Coordinate cooperative efforts in collection and analysis of data. **Ongoing**
 2. Share preliminary findings with other researchers through workshops, scientific meetings, reports, and newsletters. **Ongoing**
 3. Coordinate efforts to link bird and habitat data sets across various levels from local study plots to landscapes, ecosystems, and regions. **Ongoing**
 4. Prepare session on aging and sexing of Alaska's landbirds. **12/95**
 5. Register **ALL** MAPS stations with the IBP. **12/97**
 6. Coordinate between Boreal PIF and the Alaska Land Cover Committee. **Ongoing**
 7. Evaluate accuracy of vegetation classifications on the Alaska Land Characteristics map compiled by Mike Fleming, EROS Data Center, USGS, Anchorage. **12/97**
 8. Identify research needs by biogeographic region and initiate projects that address important species and habitats. **Ongoing**
 9. Organize a passerine session for the Alaska Bird Conference in April 1996. **3/96**
- E. Identify and prioritize research needs and coordinate research efforts in Alaska.
1. Summarize existing information and identify gaps in knowledge of distribution, habitat associations, population status and trends, role of Alaska in neotropical bird ecology, population dynamics, and methodology. **Ongoing**
 2. Solicit input from managers on needs for information and research. **Ongoing**

INFORMATION AND EDUCATION

- F. Identify training and educational needs and recommend programs for use by agencies and nongovernmental organizations. Training programs relating to conservation of neotropical migratory birds could include topics such as management of biodiversity; monitoring techniques and analysis; inventory techniques and analysis; and habitat management.
1. Identify and provide existing mechanisms to educate biologists and resource managers about neotropical migratory bird ecology and management. **Ongoing**

2. Identify new training programs and materials. **Ongoing**
 3. Compile and disseminate a computerized bibliography of references on landbirds in Alaska. **10/94, 2/97**
 4. Compile and disseminate a directory of projects being currently conducted on neotropical migratory birds in Alaska. **12/97**
 5. Attend Western Working Group meetings and report on activities of BPIF. **Ongoing**
 6. Have at least 1 representative from each agency and, at least, 1 NGO representative attend the Cape May meeting. **10/95**
- G. Incorporate PIF themes into public outreach.
1. Identify existing public outreach opportunities that can incorporate Partners in Flight. **12/95**
 2. Develop materials appropriate for Alaska that are related to neotropical migratory birds. **Ongoing**
 - a. “Alaskanize” PIF slide show. **12/96**
 - b. Adapt Songbird Blues kits for use in Alaska schools **12/96**
 - c. Distribute CD of Alaska bird songs and software. **9/96**
 - d. Develop information on shade-grown coffee, coordinate with the Audubon Society. **5/95**
 - e. Provide copies of Colleen Handel’s overview presentation (one for each agency) to show to managers and administrators. **12/97**
 - f. Develop, print, distribute poster map of migration pathways of Alaska landbird migrants. **12/97**
 3. Coordinate activities for IMBD. **Ongoing**

MANAGEMENT

I. Develop a Conservation Plan

1. Identify species and habitats most in need of conservation.
 - a. Each biogeographic region should review the species priority list, and select the top 10-20 species most in need of conservation. **6/97**
 - b. Each biogeographic region should identify habitats and related management issues. **6/97**
 - c. Finalize biogeographic lists into statewide list of species and habitats. **12/97**
2. Establish population and habitat conservation objectives. **12/97**

J. Implement Conservation Plans

1. Develop actions to meet population and habitat objectives (e.g. management prescriptions, best management practices). **12/98**
2. Work with I&E Committee to develop a strategy to inform and educate managers on implementation of the Conservation Plan. **6/98**

K. Monitor, evaluate, and report on progress and accomplishments of Boreal Partners In Flight activities in Alaska.

1. Schedule annual meeting of BPIF and prepare annual report. **Ongoing**
2. Prepare semiannual state reports to be presented at meetings of the Western Working Group. **Ongoing**
3. Identify an Alaskan representative who will attend meetings of the Western Working Group and act as liaison for Boreal PIF. **Ongoing**
4. Draft letter to director NBS supporting BBS. **1/95**